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ABSTRACT

This study was concerned with the validation of the Oklahoma Curriculum and Instructional Materials Center (CIMC) Home Economics I Manual. Validation was obtained by examining student achievement on randomly selected unit tests. Satisfactory performance on the unit tests indicated that the students were achieving the objectives, which in turn indicated that the curriculum was probably a valid source of learning materials. Five units in the curriculum manual were selected from those taught during the second semester of the 1977-78 school year. Teachers were asked to teach each unit in their usual manner, administer the unit test, score each item, and send the tests to the project staff. Results were compiled by determining the percentage of students who obtained the correct answer on each item of the unit test. A correct answer was considered an indication that the student achieved the objective being tested. It was arbitrarily determined that 80% of the students should pass an item for student achievement to be considered acceptable. Those items not passed by 80% of the students were reviewed to try and determine why the students were not achieving the concepts involved; several possibilities for deficient learning are stated. It was concluded that, overall, the Home Economics I Curriculum Manual produces acceptable student achievement and can be considered a valid source of instructional materials for home economics classes. (Data tables make up the bulk of the document.) (Author/CT)

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VALIDATION OF HOME ECONOMICS I CURRICULUM MANUAL

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NATIONAL INSTITUTE OF EDUCATION

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INTRODUCTION

The Curriculum and Instructional Materials Center (CIMC), Oklahoma State Department of Vocational and Technical Education, has developed a large number of curriculum manuals over the past several years. The format and processes have been standardized and have been adoped by curriculum centers in a number of other states.

Due to the needs of teachers to have immediate availability of good curriculum materials, the CIMC processes have not included a field test of materials before they are released for sale to local schools. The validity of the content is assured through the extensive use of advisory committees composed of vocational teachers and journeymen for the trade or trades to which a specific manual is directed. Field tests have been conducted to assure the manuals are usable by teachers and students, but no field tests have been conducted to assure that students are able to attain the performance objectives delineated in the curriculum.

There is an obvious need to validate the curriculum manuals in terms of student achievement. The purpose of the present study was to validate the Oklahoma CIMC Home Economics I curriculum manual and to develop a model whereby future manuals can be validated. Five randomly selected units from the manual served as the representative sample.

PROCEDURE

The following activities were accomplished in proceding through the study:

1. Teachers who purchased Home Economics I student manuals for the 1977-78 school year were identified through sales records of the CIMC.
2. A letter was sent to each of the identified teachers requesting that they indicate which units they would teach during the second semester. A copy of the table of contents of the manual was included for their convenience in checking those units they planned to teach. Non-respondents were contacted by telephone to obtain the information.
3. Results were tabulated to identify those units which would be taught by a majority of the teachers during the second semester.
4. A random sample of five units was selected from the nine units identified in the preceding step. Thirty-four teachers were identified who expected to teach all five of the units in the sample.
5. Ten teachers were randomly selected from the thirty-four who planned to teach all five units. Criteria for selection were that teachers agree to teach all five units and to participate in the validation study. In the initial sampling, 20 teachers were drawn, however, the first ten contacted did agree to participate.
6. Project staff met with the identified sample of teachers during Mid-Winter Conference to fully explain the project and the data collection process. A small honorarium was given each teacher for furnishing the data in the format requested.
7. Teachers collected the student achievement data in the following manner. The performance based test which accompanied each unit

in the manual was administered by the teacher to each student after the students completed the unit. The tests were graded item by item, i.e., the teacher indicated on each student's test that each item was answered correctly or incorrectly. Teachers were free to include additional test items, to weigh results, or to discount some items in terms of grades given to students, however, the project staff considered only the items on the unit test. As the units were completed, teachers submitted the unit tests to the project staff.

8. Project staff keypunched the item data for each student on each unit and returned the unit tests to the teachers. Item analyses were made on the student data to identify the strengths and weaknesses of the students as a sample.

RESULTS

The results from the validation of the Home Economics I curriculum are presented in Tables 1 through 24. The five randomly selected units were: Child Care Worker (Tables 1 through 6), Pattern and Fabric Selection (Tables 7 through 10), Small Sewing Equipment (Tables 11 through 14), Basic Sewing Techniques (Tables 15 through 18), and Color (Tables 19 through 24). Each table contains the percentage of total students who correctly answered each item of a question. Percentages are broken down by school so a more detailed picture of student achievement may be examined. A brief description of each table is included as an aid in locating the strengths and weaknesses of the curriculum in terms of student performance.

It was determined arbitrarily that 80% of the students should answer

a given item correctly to demonstrate acceptable achievement of the concept being measured. Items passed by less than 80% of the total number of students should be examined. For example, Table 1 indicates that 99% of the students matched the term "toddler" to the correct definition while Table 2 indicates only 54% of the students were able to list the characteristics of a good child care worker. The identification of items which do not meet the 80% achievement criterion may suggest problems in one or several areas.

One of the more basic problems may involve the presentation of the concept in the curriculum. Unclear information or inadequate job sheets may produce confused students and therefore less than adequate understanding of the subject matter presented. This would result in poorer performance on the unit test item measuring this concept.

When only one or two schools have less than 80% of their students passing an item, the problem may be specific to the situation. One cause may relate to the teacher's presentation of the concept. It is possible that the curriculum materials are adequate but are not being utilized by the teacher in the best way possible. There may be a few units or concepts with which some teachers are unfamiliar--and therefore have difficulty in presenting the concept. The result is seen in lower student achievement.

Another explanation of low achievement may be related to the students themselves. Past experience with the subject, the difficulty of the concepts, innate ability of the students, and motivation to learn influence the performance of a student. Any of these phenomena may account for a situation in which 100% of the students at one school pass an item while only 50% of the students at another school pass the same item.

The environment can act as an influence on student achievement and performance. When dealing with vocational training, the equipment becomes an important aspect of the learning process. If the equipment is not adequate or other environmental influences are not positive, the result may be less than acceptable mastery of the concepts being presented. When the percentage of students passing a test item is less than the 80% criterion it may be due to inadequate facilities rather than the curriculum materials or teacher.

Th possibility that the question itself is not well written should be considered. Although the curriculum has been presented adequately by the teacher and understood by the students, an ambiguous or irrelevant test question could produce spuriously low student achievement. This problem can be remedied by examining the clarity of those items that are being failed by over 20% of the students and making appropriate revisions in the questions. There may also be a need to review the illustrations in the unit tests to assure they are accurate and clear to the students.

The performance items on several units were often not included on the unit test since teachers had already graded students on those items based on the assignment and job sheets. Because our data is incomplete, little attempt will be made to infer problems regarding the performance items.

In summary, it is apparent that one source cannot be identified as the sole reason learning does or does not take place. Many factors, including the curriculum, the teacher, and the environment work together to support the students' learning. The present study can only indicate that students are, or are not mastering the concepts as they are

measured through the test items. Those items passed by at least 80% of the students indicate that the curriculum, teacher, student, and environmental influences have worked together so that a particular task or concept could be learned. Similarly, those items passed by less than 80% of the students indicate there may be a problem with the curriculum, the teaching, the facilities, or the question. This study can only pinpoint where the problems are. The table summaries at the end of each unit are only intended as suggestions for attacking a multi-dimensional problem.

TABLE I CHILD CARE WORKER

Percentage of students who answered correctly

Item	All Schools N=183	School 1 N=23	School 2 --	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
Question 1. Match terms associated with the child care worker to the correct definitions. Place the appropriate numbers in the blanks provided.											
a. Toddler	99	100	---	100	100	100	100	100	89	100	97
b. Salary	98	100	---	100	100	95	100	78*	89	100	100
c. Day care center	91	91	---	92	94	95	82	78*	67*	91	97
d. Child care worker	95	96	---	92	98	100	82	89	89	100	93
e. Nursery	93	96	---	92	91	95	100	100	89	91	93
f. First aid	100	100	---	100	100	100	100	100	100	100	97
g. Day care home	98	100	---	100	100	100	100	89	100	100	90
h. Infant	99	100	---	100	100	100	100	100	89	100	97
i. Duties	99	100	---	100	100	95	100	100	100	100	97
j. Hours	99	100	---	100	100	100	100	78*	100	100	100
Question 2. Name five places to find child care jobs.											
a.	97	100	---	100	100	100	100	89	100	97	90
b.	97	96	---	100	100	100	100	100	100	100	87
c.	95	100	---	100	97	100	91	100	100	100	73*
d.	90	91	---	100	94	95	82	100	100	91	73*
e.	84	83	---	92	89	85	82	100	100	82	70*

Student achievement appears to be high with regard to the definitions of child care terms. Over 90% of the students could match each item with its correct definition. Looking at Question 2, most students appear aware of the places to find child care jobs, although the students at one school had a few problems with this question.

TABLE 2 CHILD CARE WORKER

Percentage of students who answered correctly

Item	All Schools N=183	School 1 N=23	School 2 ---	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
Question 3. Describe characteristics of a good child care worker.											
	54*	35*	---	67*	63*	80	18*	22*	11*	79*	43*
Question 4. Name three benefits of child care work.											
a.	69*	61*	---	67*	86	80	55*	89	56*	71*	53*
b.	65*	57*	---	83	86	65*	55*	89	44*	56*	50*
c.	56*	44*	---	75*	71*	60*	55*	67*	44*	53*	43*

The characteristics of a good child care worker and the benefits of child care work are not clear for almost half of the total number of students. Since lower achievement is not specific to one or two schools, the weak source may be in the curriculum or in the structure of the question being asked rather than with the teacher or the facility. Most of the students were able to list some characteristics, but the structure of Question 3 did not facilitate giving credit for those characteristics the student did know.

TABLE 3 CHILD CARE WORKER

Percentage of students who answered correctly

Item	All Schools N=183	School 1 N=23	School 2 ---	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
Question 5. Select from the list below points to include in mutual agreements between parents and child care worker. Place an "x" in the appropriate blanks.											
a. Amount paid	98	96	---	100	97	100	100	100	100	84	100
b. Clean house	88	87	---	83	97	95	100	100	100	77*	77*
c. Why going out	99	100	---	100	97	95	100	100	100	100	100
d. Duties	97	96	---	100	97	100	100	100	100	91	97
e. Work hours	98	96	---	100	100	100	100	100	100	94	100
f. Number and ages of children	92	87	---	83	100	95	100	100	78*	82	97

TABLE 3 CHILD CARE WORKER--Continued

Item	All Schools N=183	School 1 N=23	School 2 ---	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
	Percentage of students who answered correctly										
Question 6. Distinguish between responsibilities of parents and child care worker. Place a "P" in front of those responsibilities of the parents and a "W" in front of those of the child care worker.											
a. Arrangements	96	91	---	100	94	95	100	100	100	100	90
b. Transportation	96	100	---	100	97	100	82	100	100	91	97
c. Pleasant	97	100	---	100	100	100	100	100	100	91	93
d. Care directions	91	78*	---	100	97	90	100	78*	100	94	83
e. Prompt	96	96	---	100	97	95	100	100	100	91	93
f. Knowledge of child	99	96	---	100	97	100	100	100	100	100	100
g. Entertain child	98	96	---	100	97	100	100	100	100	100	93
h. Attentive	94	91	---	67*	97	95	100	100	100	94	97
i. Address of parents	95	100	---	100	97	95	91	100	100	88	93
j. Telephone use	98	100	---	100	100	95	100	100	100	97	97
k. Friends	98	100	---	100	100	100	100	100	100	94	97
l. Time of return	98	100	---	100	100	100	100	100	100	97	97
m. Stay awake	98	96	---	100	100	100	100	100	100	94	100
n. Return home	96	100	---	100	94	90	100	100	100	91	100
o. Follow instruction	99	100	---	100	100	100	100	100	100	94	100
p. Set wages	91	96	---	100	97	90	91	89	100	88	80

Table 3 indicates the students have achieved a good understanding of the relationship between the parents and the child care worker. Most of the items have been answered correctly by over 95% of the students, an indication that the learning situation provided by the curriculum and teachers is positive.

TABLE 4 CHILD CARE WORKER

Percentage of students who answered correctly

Item	All School N=183	School 1 N=23	School 2 ---	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
Question 7. Select from the list below guidelines for responsible child care by placing an "X" in the appropriate blanks.											
a. Tell parents	91	91	---	100	94	95	82	100	78*	94	83
b. Aware of child	98	100	---	100	100	100	100	100	100	97	93
c. Physical punishment	74*	61*	---	42*	94	70*	73*	56*	78*	74*	80
d. Positive directions	91	91	---	92	94	100	73*	56*	89	91	97
e. Nag and scold	100	100	---	100	100	100	100	100	100	100	97
f. Care about child	98	100	---	100	100	100	91	89	100	97	100
g. Good example	96	91	---	100	94	100	91	100	89	97	97

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Generally, student achievement on Question 7, Table 4, regarding the concept of responsible child care guidelines is good. Only one item (c), "Use physical punishment only when necessary" does not meet the 80% criteria. The statement may not be worded clearly or not adequately covered in the curriculum or by the teachers.

TABLE 5 CHILD CARE WORKER

Percentage of students who answered correctly

Item	All Schools N=183	School 1 N=23	School 2 ---	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
Question 8. Match the accidents on the right to the possible prevention measure on the left. Place the appropriate numbers in the blanks provided.											
a. Swallowing foreign objects	99	100	---	100	100	100	100	100	100	100	93
b. Poisons	100	100	---	100	100	100	100	100	100	100	97
c. Falls	98	100	---	100	100	100	100	100	100	100	90
d. Drowning	99	100	---	100	100	100	100	89	100	100	97
e. Suffocation	99	100	---	100	100	100	100	89	100	100	97
f. Burns	98	96	---	100	100	100	100	89	100	100	97

TABLE 5 CHILD CARE WORKER--Continued

Percentage of students who answered correctly

Item	All Schools N=183	School 1 N=23	School 2 ---	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
Question 9. Match the injury/illness on the right to the proper procedure on the left. Place the appropriate numbers in the blanks provided. Terms and definitions are continued on next page.											
a. Broken bones/ disclocation	97	100	---	100	100	95	100	100	89	97	93
b. Nosebleed	98	96	---	100	100	100	100	100	100	100	93
c. Serious burns	90	91	---	92	97	95	100	100	89	82	77*
d. Serious cuts	92	87	---	100	100	95	91	100	100	94	77*
e. Minor burns	91	96	---	92	97	90	100	100	100	85	80
f. Minor cuts	95	96	---	92	100	85	91	100	89	100	90
g. Object in eye	98	100	---	100	97	95	91	100	100	100	97
h. Poison	95	96	---	100	97	100	91	100	100	81	97
i. Splinters	99	100	---	100	97	100	100	100	100	100	97
j. Animal bites	98	100	---	100	97	100	100	100	100	97	93
k. Swallowed objects	88	87	---	100	94	85	91	89	89	77*	90
l. Abdominal pain	96	96	---	100	97	95	100	100	100	88	100
m. Choking	91	87	---	100	94	90	100	100	100	79*	93
n. Object in ear or nose	93	96	---	100	97	90	91	89	78*	94	93

Question 8 and 9 which measure student achievement regarding accidents, injury and illness have been answered correctly by at least 88% of the students. The curriculum appears to adequately stimulate learning with regard to this concept.

TABLE 6 CHILD CARE WORKER

Percentage of students who answered correctly

Item	All Schools N=183	School 1 N=23	School 2 ---	School 3 N=12	School 4 N=35	School 5 N=20	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=34	School 10 N=30
Question 10. Locate safety hazards.											
Only one response.											
Question 11. Complete checklist for Child Care Worker.											
Only one response.											

Only one teacher responded regarding one student's completion of the performance items (Question 10 and 11). The remaining 9 teachers did not indicate whether the activities were attempted.

CHILD CARE WORKER SUMMARY

Generally, student achievement on the Child Care Worker unit is very high. The results of the unit test indicate that the students are comprehending the subject matter through the use of the curriculum materials, the teacher, and the facilities. The only real problems seem to be in the students' ability to characterize the child care workers and to identify the benefits of child care work.

TABLE 7 PATTERN & FABRIC SELECTION

Percentage of students who answered correctly

Item	All Schools N=202	School 1 N=24	School 2 N=8	School 3 N=13	School 4 N=38	School 5 N=21	School 6 N=11	School 7 N=8	School 8 N=10	School 9 N=40	School 10 N=29
Question 1. Match the terms on the right to the correct definitions.											
a. Line	87	83	100	92	92	81	100	75*	90	90	72*
b. Shape of garment	90	88	100	92	92	81	100	100	90	88	90
c. Fabric width	89	92	88	92	82	76*	100	75*	90	98	90
d. Yardage	95	92	100	100	97	86	100	100	80	100	93
e. Optical illusion	96	96	100	100	100	86	100	100	90	93	97
f. Ease	83	79*	88	92	82	76*	100	88	90	85	76*
Question 2. Match the following types of lines on the right to the correct effects and descriptions of each.											
a. Curved	95	100	100	100	100	90	100	88	90	95	83
b. Vertical	89	75*	100	92	100	86	100	100	100	80	86
c. Diagonal	95	96	100	100	100	100	91	88	90	93	90
d. Horizontal	88	75*	100	92	100	81	91	88	100	78*	90

The first two questions require that the student be able to recognize the definitions of the terms identified in this unit. As a whole, the students appear to be mastering the verbal concepts presented by the curriculum. Although the 80% criteria was not met by every school on every item, no major problems seem present with the curriculum or other learning sources.

TABLE 8 PATTERN & FABRIC SELECTION

Percentage of students who answered correctly

Item	All Schools N=202	School 1 N=24	School 2 N=8	School 3 N=13	School 4 N=38	School 5 N=21	School 6 N=11	School 7 N=8	School 8 N=10	School 9 N=40	School 10 N=29
Question 3. Name two optical illusion techniques and effects.											
a.	69*	58*	75*	46*	61*	67*	100	63*	80	75*	79*
b.	70*	58*	75*	46*	58*	67*	100	75*	80	73*	86

Question 3 asks the student to recall 2 optical illusion techniques. The resulting performance was not adequate for the majority of schools. Most students were able to match the term "optical illusion" to its definition as required in Question 1, but were not able to elaborate on the concept as called for in the present question. Possibly, the presentation of the curriculum should be examined to determine if further explanation would be helpful to student achievement.

Question 4. Explain the four ways to test fabric in stores.											
a. Check edge	82	88	88	54*	79*	76*	100	75*	90	85	82
b. Check wrinkles	81	92	100	77*	71*	76*	100	88	90	78*	79*
c. Look at grain	61*	63*	75*	46*	55*	57*	100	75*	70*	60*	52*
d. Stretch it	71*	75*	88	69*	61*	67*	91	88	80	70*	69*

In half of the schools, over 20% of the students had problems explaining the four ways to test fabrics. This suggests that one or more aspects of the teaching environment are not adequately assisting in student achievement. Because low achievement is present in several schools, the problem may be focused in the curriculum materials. A closer look at the unit may be warranted.

TABLE 9 PATTERN & FABRIC SELECTION

Percentage of students who answered correctly

Item	All Schools N=202	School 1 N=24	School 2 N=8	School 3 N=13	School 4 N=38	School 5 N=21	School 6 N=11	School 7 N=8	School 8 N=10	School 9 N=40	School 10 N=29
Question 5. Distinguish between information found on the front and back of a pattern envelope. Do so by placing an "F" by information from the front and a "B" by information from the back.											
a. Price	95	88	100	100	100	90	100	100	100	93	90
b. Description	85	88	100	92	87	76*	100	50*	90	88	76*
c. Measurement	93	96	100	92	97	95	100	50*	90	98	86
d. Amount of fabric	97	100	100	100	95	95	100	100	100	95	93
e. Pattern number	50*	46*	75*	100	61*	52*	45*	88	40*	53*	45*
f. Number of pieces	90	79*	88	92	92	95	91	88	80	88	97
g. Notions needed	98	96	100	100	100	100	100	100	100	95	97
h. Pattern company	54*	50*	63*	15*	61*	52*	36*	88	40*	59*	59*
i. Garment picture	88	83	100	77*	79*	95	91	88	90	90	97
j. Figure type, size	69*	67*	100	62*	71*	76*	91	63*	60*	59*	66*
k. Back view	92	83	100	92	92	95	91	100	80	95	93
l. Special instruction	98	100	100	100	95	100	91	100	90	97	100
m. Yardage chart	98	100	100	100	97	95	91	100	90	100	100
n. Suitable fabric	95	96	100	100	97	86	91	100	90	92	100

Student achievement is positive on the majority of items regarding the information on a pattern envelope. Two of the items require an answer of both "F" and "B" (item e and h) and were missed by about half of the students. A review of the curriculum may be helpful to determine whether the materials are clear as to what information is contained on both sides of a pattern as well as the information provided about size and figure type (item j). Reorganizing the question so that both "F" and "B" are not required for the 2 items could raise student achievement.

TABLE 10 PATTERN & FABRIC SELECTION

Percentage of students who answered correctly

Item	All Schools N=202	School 1 N=24	School 2 N=8	School 3 N=13	School 4 N=38	School 5 N=21	School 6 N=11	School 7 N=8	School 8 N=10	School 9 N=40	School 10 N=29
Question 6. Determine pattern size and type.											
	100	---	---	---	100	100	100	100	100	---	---
Question 7. Select pattern and fabric yardage.											
	100	---	---	---	100	100	100	100	100	---	---

Student achievement on the performance questions were reported by 5 of the 10 schools. All of the students performed these activities to the satisfaction of the teacher. This result suggests that the learning environment has provided the students with the instruction needed to perform the tasks required by this unit.

PATTERN & FABRIC SELECTION SUMMARY

Most of the concepts in Pattern and Fabric Selection have been mastered by the students. Problems are apparent with naming optical illusion techniques and explaining the ways to test fabrics. Several schools had low student achievement regarding the various information found on pattern envelopes. A review of the curriculum should determine if clarifying the information with regards to these concepts would be beneficial to the students' performance.

TABLE 11 SMALL SEWING EQUIPMENT

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=25	School 2 N=8	School 3 N=13	School 4 N=33	School 5 N=21	School 6 N=11	School 7 N=7	School 8 N=10	School 9 N=43	School 10 N=30
Question 1. Identify the following cutting tools for sewing. Place the appropriate names in the blanks provided.											
a. Dressmaker's shears	94	88	100	100	97	95	100	100	90	95	83
b. Sewing scissors	96	88	100	100	97	95	100	86	100	95	97
c. Pinking shears	99	96	100	100	100	95	100	100	100	100	100
d. Electric scissors	99	100	100	92	100	100	100	86	100	100	100
e. Seam ripper	100	100	100	100	100	95	100	100	100	100	100
Question 2. Identify the following measuring aids for sewing.											
a. Meter-yardstick	98	100	88	92	100	95	100	86	100	98	100
b. Tape measure	100	100	100	100	100	100	100	86	100	100	100
c. Sewing gauge	100	100	100	100	100	100	100	86	100	100	100
Question 3. Identify the following marking supplies for sewing.											
a. Tracing wheel	96	96	100	85	97	100	100	100	100	98	87
b. Tailor's chalk	97	96	100	92	97	100	100	100	100	93	97
c. "Tack-it"	92	96	100	77*	97	81	100	100	100	98	80
d. Pins	99	100	100	92	100	95	100	100	100	100	100
e. Needle & thread	99	100	100	92	97	100	100	86	100	100	100

TABLE 12 SMALL SEWING EQUIPMENT

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=25	School 2 N=8	School 3 N=13	School 4 N=33	School 5 N=21	School 6 N=11	School 7 N=7	School 8 N=10	School 9 N=43	School 10 N=30
Question 4. Identify the following pressing equpiment for sewing.											
a. Ironing board	97	96	100	100	97	95	100	100	90	98	97
b. Press cloth	90	96	100	77*	91	81	100	100	80	86	97
c. Iron	96	96	100	100	97	81	100	100	90	97	97
d. Tailor's ham	82	88	88	31*	94	76*	100	71*	100	88	70*
e. Sleeve board	87	92	100	69*	88	76*	100	57*	90	88	90
f. Pounding block	81	80	88	77*	85	67*	100	29*	90	81	90
g. Seam roll	75*	60*	88	46*	76*	43*	100	57*	80	93	87
h. Needle board	79*	72*	100	54*	88	76*	100	14*	90	88	73*
Question 5. Identify the following miscellaneous sewing equipment.											
a. Pin cushion and emery	95	100	100	100	100	100	100	57*	100	98	77*
b. Thimble	100	100	100	100	100	100	100	100	100	98	100

The first five questions, Tables 11 and 12, require the student to look at an illustration and then identify the particular piece of sewing equipment being shown. Close to 100% of the students were able to identify the various cutting tools, measuring aids, and marking supplies used for sewing. Several students were not able to identify some of the equipment used for pressing (Question 4). Although only 2 items were missed by more than 20% of the total number of students, a few schools did not meet the 80% criteria on 5 or 6 items. Results such as this may call for curriculum with a greater emphasis on the pressing equipment, or perhaps these results indicate a lack of pressing equipment in those schools.

TABLE 13 SMALL SEWING EQUIPMENT

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=25	School 2 N=8	School 3 N=13	School 4 N=33	School 5 N=21	School 6 N=11	School 7 N=7	School 8 N=10	School 9 N=43	School 10 N=30
Question 6. Match the cutting tools for sewing on the right to the correct function/descriptions on the left by placing the appropriate numbers in the blanks.											
a. Sewing scissors	85	96	100	54*	82	81	100	71*	100	91	77*
b. Electric scissors	76*	76*	100	54*	79*	81	100	0*	80	86	63*
c. Dressmaker's shears	65*	72*	100	39*	73*	67*	100	0*	80	67*	43*
d. Pinking shears	80	92	100	46*	85	76*	91	86	100	77*	70*
e. Seam ripper	96	100	100	77*	94	91	100	86	100	98	100
Question 7. Match measuring aids for sewing on the right to the correct functions/descriptions on the left by placing the appropriate numbers in the blank.											
a. Tape measure	96	100	100	77*	100	91	100	100	90	100	93
b. Meter-yardstick	99	100	100	100	100	95	100	100	100	100	93
c. Sewing gauge	97	100	100	77*	100	95	100	86	90	100	100
Question 8. Match marking supplies for sewing on the right to the correct functions/descriptions on the left by placing the appropriate numbers in the blanks.											
a. Needle & thread	89	96	88	77*	97	86	91	72*	100	91	77*
b. Pins	90	100	88	77*	97	91	91	86	100	88	77*
c. Tailor's chalk	98	100	100	100	100	100	100	86	100	98	93
d. Tracing wheel and paper	94	92	100	100	100	86	100	86	100	95	83

TABLE 13 SMALL SEWING EQUIPMENT--Continued

Item	All Schools N=201	School 1 N=25	School 2 N=8	School 3 N=13	School 4 N=33	School 5 N=21	School 6 N=11	School 7 N=7	School 8 N=10	School 9 N=43	School 10 N=30
	Percentage of students who answered correctly										

Questions 6 through 8 require the student to match the sewing equipment to its function. Student achievement on Question 6 was especially low at 3 schools. Although these same students were able to identify the cutting tools from an illustration (Question 1), they were not able to master the more complex operation of matching the respective functions to the equipment. Some students may need an assignment or job sheet related to cutting tools to assist in their learning.

TABLE 14 SMALL SEWING EQUIPMENT

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=25	School 2 N=8	School 3 N=13	School 4 N=33	School 5 N=21	School 6 N=11	School 7 N=7	School 8 N=10	School 9 N=43	School 10 N=30
Question 9. Explain how pressing and ironing differ.	70*	88	75*	23*	79*	81	73*	72*	90	84	27*
Question 10. Measure common sewing lengths.	100	---	---	---	100	100	100	100	---	---	---
Question 11. Select equipment needed for a sewing project.	100	---	---	---	100	100	100	100	---	---	---

Only 70% of the students were able to explain the differences between pressing and ironing. Over half of the schools did not meet the 80% criteria for achievement. These figures may indicate that the learning resources are not adequate to foster student performance. It is also possible that the structure of the question does not allow for any partial credit if a student lists one or two differences rather than the required four. Itemizing the question so that credit can be given for partially complete answers may improve student achievement.

Students at four schools successfully completed the performance items (Question 10 and 11). Teachers at the other six schools did not indicate whether the activities were attempted.

TABLE 14 SMALL SEWING EQUIPMENT--Continued

Item	All Schools N=201	School 1 N=25	School 2 N=8	School 3 N=13	School 4 N=33	School 5 N=21	School 6 N=11	School 7 N=7	School 8 N=10	School 9 N=43	School 10 N=30
	Percentage of students who answered correctly										

SMALL SEWING EQUPIMENT SUMMARY

After completing the unit on Small Sewing Equipment, over 90% of the students were able to identify various cutting tools, measuring aids, marking supplies, miscellaneous sewing equipment and were able to match the correct function to the equipment. The identification of pressing equipment and the difference between pressing and ironing were not as easily mastered by several students. Supplemental material on pressing and the function of various sewing tools may improve student achievement on this unit.

TABLE 15 BASIC SEWING TECHNIQUES

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=24	School 2 N=8	School 3 N=11	School 4 N=36	School 5 N=21	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=43	School 10 N=27
Question 1. Match the terms on the right to the correct definitions on the left by placing the appropriate numbers in the blanks provided.											
a. Layout	97	100	100	100	97	95	100	89	100	96	96
b. Selvage	96	100	100	91	92	95	100	67*	100	100	96
c. Off-grain	91	83	100	73*	89	95	100	89	100	89	100
d. Pattern markings	97	100	100	100	100	86	100	78*	100	98	100
e. Grain	88	83	88	91	92	91	100	78*	89	84	85
f. On-grain	83	75*	88	73*	86	86	91	67*	89	84	85
g. Guidesheet	99	100	100	82	100	100	100	89	100	100	100
h. Preshrink	97	100	100	82	100	95	91	89	100	100	96

As seen in Table 15, approximately 90% of the students were able to match the sewing technique terms with the correct definition. Although one school had some difficulty with four of the terms, there are not a sufficient number of students with problems to warrent a curriculum change. Additional practice with the terms would probably benefit School 7.

TABLE 16 BASIC SEWING TECHNIQUES

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=24	School 2 N=8	School 3 N=11	School 4 N=36	School 5 N=21	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=45	School 10 N=27
Question 2. Name three types of information contained in pattern guidesheet.											
a. Ready-to-sew	86	75*	100	64*	83	100	100	56*	100	87	89
b. Layout	80	50*	88	73*	81	91	100	78*	100	78*	89
c. Sewing	80	67*	88	64*	86	91	100	22*	89	82	82

Student achievement was adequately demonstrated on Question 2 as over 80% of the students at 6 of the schools were able to name the 3 types of information contained in a pattern guide sheet. The students at the 3 schools who did not reach the criteria on any of the 3 types of pattern information may need additional instruction in this area.

TABLE 17 BASIC SEWING TECHNIQUES

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=24	School 2 N=8	School 3 N=11	School 4 N=36	School 5 N=21	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=45	School 10 N=27
Question 3. Match the pattern markings on the illustration on the right to the correct uses. Place the appropriate numbers in the blanks provided.											
a.	79*	58*	63*	82	81	71*	64*	67*	67*	64*	78*
b.	80	71*	75*	100	92	86	100	44*	89	71*	78*
c.	77*	67*	88	82	89	86	64*	78*	89	71*	70
d.	68*	38*	88	91	86	71*	100	44*	100	58*	52*
e.	68*	50*	63*	91	83	67*	91	44*	67*	64*	63*
f.	94	79*	75*	100	100	91	91	89	100	96	100
g.	68*	46*	63*	82	81	86	100	44*	67*	64*	52*
h.	84	79*	88	82	92	91	64*	56*	78*	87	89
i.	86	83	100	100	100	76*	64*	67*	78*	87	82
j.	81	86	63*	82	92	76*	64*	56*	89	84	78*

An acceptable percentage of students were able to master only half of the items in Question 3. In some schools, as few as 38-44% of the students were able to match a pattern marking to its correct use. Only 2 schools met the criteria with over 80% of their students matching all the items correctly. These results suggest that additional information provided in the curriculum or by the teachers could be beneficial to student achievement. A larger illustration may clarify the particular pattern marking being referred to by each arrow and assist the students in higher performance.

TABLE 18 BASIC SEWING TECHNIQUES

Percentage of students who answered correctly

Item	All Schools N=201	School 1 N=24	School 2 N=8	School 3 N=11	School 4 N=36	School 5 N=21	School 6 N=11	School 7 N=9	School 8 N=9	School 9 N=45	School 10 N=27
Question 4. Complete garment fact sheet.											
	100	---	---	---	100	100	100	---	---	---	---
Question 5. Demonstration of ability.											
a. Prepare pattern	100	---	---	---	100	100	100	---	100	---	---
b. Prepare fabric	100	---	---	---	100	100	100	---	100	---	---
c. Pin pattern	100	---	---	---	100	100	100	---	100	---	---
d. Cut garment	100	---	---	---	100	100	100	---	100	---	---
e. Make patter marks	100	---	---	---	100	100	100	---	100	---	---
f. Stitch press darts	100	---	---	---	100	100	100	---	---	---	---
g. Apply zipper	100	---	---	---	100	100	100	---	---	---	---
h. Finish facing edge	100	---	---	---	100	100	100	---	---	---	---
i. Attach facing	100	---	---	---	100	100	100	---	---	---	---
j. Hem garment	100	---	---	---	100	100	100	---	---	---	---

Only 3 schools indicated attempting both performance activities. The garment fact sheet and the steps involved in making a garment were successfully completed by all those students whose teachers reported the results. Apparently, the students at one school only partially completed a garment, but did so satisfactorly.

BASIC SEWING TECHNIQUES SUMMARY

Achievement on Basic Sewing Techniques is adequate regarding the students' ability to match the terms with the appropriate definition. Although 80% or more of the students were able to list the information contained in a pattern guidesheet, the low achievement at 3 schools demonstrates a need for additional assistance for some students. Some of these same students also had trouble matching the pattern markings to their correct use. Whether the students would benefit more from additional information, repetition and drills or related assignment sheets, cannot be determined from the present study. Further examination of the curriculum is recommended.

TABLE 19 COLOR

Percentage of students who answered correctly

Item	All Schools N=200	School 1 N=22	School 2 N=7	School 3 N=12	School 4 N=34	School 5 N=18	School 6 N=11	School 7 N=7	School 8 N=9	School 9 N=56	School 10 N=24
Question 1. Match the terms on the right to the correct definitions on the left by placing the appropriate numbers in the blanks provided.											
a. Neutral colors	84	64*	86	92	85	94	91	100	100	79*	88
b. Primary colors	91	77*	100	100	88	89	73*	100	100	95	92
c. Accent colors	79*	68*	86	83	79*	72*	73*	86	89	79*	83
d. Secondary colors	86	82	100	92	88	94	100	71*	89	79*	83
e. Shades	88	68*	100	100	97	94	91	86	100	79*	92
f. Intermediate colors	77*	50*	100	92	82	89	73*	71*	89	73*	75*
g. Dominant color	79*	68*	100	83	77*	78*	55*	100	89	80	79*
h. Tints	86	77*	100	100	97	89	82	100	89	73*	88
i. Color wheel	95	96	100	100	97	94	82	86	100	93	96

Looking at student achievement on the first question, it is apparent that several students had problems with the initial mastery of color-related terms. Only 3 schools had more than 80% of their students match all of the terms to their correct definitions. Most of the terms may have been unfamiliar to the students in the beginning and therefore need more time and practice to be adequately learned. Additional activities involving these terms may provide a better basis for mastering the increasingly difficult objectives in the latter part of the unit.

TABLE 20 COLOR

Percentage of students who answered correctly

Item	All Schools N=200	School 1 N=22	School 2 N=7	School 3 N=12	School 4 N=34	School 5 N=18	School 6 N=11	School 7 N=7	School 8 N=9	School 9 N=56	School 10 N=24
Question 2. Classify the colors listed below as either primary, secondary, or intermediate colors. Place "P" in the blanks indicating primary, "S" for secondary, and "I" for intermediate.											
a. Yellow-orange	83	73*	100	75*	82	89	91	100	100	79*	79*
b. Red	95	86	100	83	94	100	91	100	100	98	96
c. Green	76*	64*	100	83	74*	89	91	100	100	63*	79*
d. Yellow-green	83	68*	100	75*	82	89	82	100	100	84	79*
e. Yellow	92	96	100	83	94	83	82	100	100	89	100
f. Orange	84	68*	86	75*	88	89	82	100	100	84	83
g. Blue-green	82	64*	100	75*	88	89	64*	100	89	84	79*
h. Blue	91	77*	86	92	91	100	100	100	100	91	83
i. Blue-violet	82	64*	100	75*	82	89	73	100	100	77*	92
j. Red-violet	82	64*	100	75*	79*	89	82	100	100	75*	96
k. Violet	79*	59*	86	83	85	78*	91	86	100	70*	92
l. Red-orange	81	73	100	75*	79*	89	82	100	78*	79*	83

To master the objective covered in Question 2, students need to understand the difference among primary, secondary, and intermediate colors. It appears that students in some schools (School 2, 7, and 8) are able to classify the colors as requested whereas students in other schools, (School 1, 3, and 9) appear confused and are not able to correctly classify the colors into the 3 categories.

Only one school had less than 80% of their students correctly classify a primary color. Possibly the distinction between secondary and intermediate colors is the main problem, since 2 of the 3 secondary colors were missed by 21-24% of the total number of students. An emphasis on the job sheet that requires the student to make a color wheel and further drill on the colors may be helpful.

TABLE 21 COLOR

Percentage of students who answered correctly

Item	All Schools N=200	School 1 N=22	School 2 N=7	School 3 N=12	School 4 N=34	School 5 N=18	School 6 N=11	School 7 N=7	School 8 N=9	School 9 N=56	School 10 N=24
Question 3. Distinguish between warm and cool colors by placing "W" by the warm colors and "C" by the cool colors from the list provided below.											
a. Red-violet	59*	50*	71*	50*	47*	100	64*	71*	78*	52*	58*
b. Yellow-green	70*	50*	71*	58*	59*	100	82	100	100	68*	67*
c. Green	79*	77*	100	75*	79*	94	73*	100	78*	77*	63*
d. Red	85	82	100	67*	85	89	73*	100	67*	88	92
e. Blue-green	81	68*	100	58*	85	83	91	100	78*	79*	83
f. Red-orange	83	82	100	83	79*	89	91	100	78*	79*	79*
g. Blue	83	64*	100	83	85	89	91	100	89	80	83
h. Yellow-orange	75*	41*	100	67*	74*	78*	91	100	78*	75*	83
i. Yelow	76*	55*	100	67*	71*	72*	91	100	89	79*	75*
j. Blue-violet	75*	59*	100	67*	71*	72*	91	86	78*	77*	75*
k. Violet	73*	59*	100	58*	77*	72*	91	100	67*	75*	63*
l. Orange	74*	59*	86	67*	74*	83	82	86	78*	77*	67*

Question 3 measures the students' ability to distinguish between warm and cool colors. Although 2 schools appear to have mastered the concept, most of the other schools did not meet the 80% criteria on several items. It appears that the students either do not understand the difference between the types of colors or they cannot recognize and classify the colors as warm or cool.

TABLE 22 COLOR

Percentage of students who answered correctly

Item	All Schools N=200	School 1 N=22	School 2 N=7	School 3 N=12	School 4 N=34	School 5 N=18	School 6 N=11	School 7 N=7	School 8 N=9	School 9 N=57	School 10 N=24
Question 4. Match the dimensions of colors on the right to their definitions on the left. Place the appropriate numbers in the blanks provided.											
a. Intensity	74*	86	71*	100	71	56*	46*	86	67*	71*	83
b. Hue	92	91	86	83	91	44*	82	100	100	93	96
c. Value	72*	77*	71*	92	68*	56*	36*	86	67*	75*	79*
Question 5. Match basic color schemes on the right to the correct description on the left by placing the appropriate numbers in the blanks provided.											
a. Monochromatic	83	68*	86	100	79*	89	82	100	89	80	88
b. Split complementary	61*	32*	86	100	47*	78*	64*	100	67*	54*	71*
c. Complementary	63*	46*	86	100	65*	78*	55*	100	67*	46*	67*
d. Analogous	70*	50*	86	100	68*	61*	73*	100	78*	61*	83
e. Triad	79*	64*	86	100	82	94	82	100	56*	75*	71*
f. Accented neutral	83	59*	86	100	85	94	91	100	89	80	79*
g. Double complementary	68*	46*	71*	100	71*	83	82	100	67*	55*	71*

To satisfy 2 of the objectives in this unit, the students should be able to match the dimensions of color and the basic color schemes to their respective definitions. In the majority of cases, less than 75% of all the students achieved the correct answer, and many schools had only 60% of the students passing an item. The subject seems adequately covered in the information sheets but may need more emphasis in the job sheets or assignment sheets.

TABLE 23 COLOR

Percentage of students who answered correctly

Item	All Schools N=200	School 1 N=22	School 2 N=7	School 3 N=12	School 4 N=34	School 5 N=18	School 6 N=11	School 7 N=7	School 8 N=9	School 9 N=56	School 10 N=24
Question 6. Name five guidelines for using color.											
a.	70*	68*	71*	42*	59*	83	73*	100	89	79*	54*
b.	65*	68*	86*	50*	59*	72*	82	100	89	64*	42*
c.	60*	59*	71*	50*	50*	78*	55*	86	100	59*	46*
d.	51*	55*	57*	50*	35*	61*	27*	71*	100	57*	29*
e.	44*	27*	29*	42*	38*	61*	27*	71*	89	48*	29*

The vast majority of the schools had trouble meeting the 80% criteria when the students were asked to name five guidelines for using color. There appears to be a need for change when approximately half of the total number of students cannot meet the full requirements of the specified objective. Although decreasing the requirements by 1 or 2 guidelines may allow for greater student achievement, the percentage of correct answers may still be below the criteria. Further study into the presentation of the concept may be helpful.

TABLE 24 COLOR

Percentage of students who answered correctly

Item	All Schools N=200	School 1 N=22	School 2 N=7	School 3 N=12	School 4 N=34	School 5 N=18	School 6 N=11	School 7 N=7	School 8 N=9	School 9 N=56	School 10 N=24
Question 7. Plan color schemes.											
Question 8. Make a color wheel.											
Question 9. Change intensity of color.											
Question 10. Change value of color.											

Table 24 lists the four performance items for the Color Unit. None of the 10 teachers indicated that these activities were attempted. The completion of the activities listed as job sheets may help the students' performance on the unit test.

COLOR SUMMARY

There appear to be a number of students with deficiencies in the area of color. Student achievement drops close to 50% on some items. An examination of the curriculum as a whole may indicate a need for more emphasis on the basic concepts or more of an opportunity for practice with the concepts presented. It may be profitable to discuss the unit with a group of teachers to determine if there is a lack of interest or a lack of training in this area. If the problem involves the teachers' ability to present the material to the students, an inservice workshop may be beneficial. Special attention should be placed with the classification and the dimensions of colors, color schemes, and color guidelines.

DISCUSSION

This study was concerned with the validation of the Oklahoma CIMC Home Economics I manual. Validation was obtained by examining student achievement on randomly selected unit tests. Satisfactory performance on the unit tests indicated the students were achieving the objectives which in turn indicated that the curriculum was probably a valid source of learning materials. Five units in the curriculum manual were selected from those taught during the second semester of the 1977-78 school year. Ten teachers were asked to teach each unit in their usual manner, administer the unit test, score each item as correct or incorrect, and send the tests to the project staff. Each item on the students' tests was keypunched and the tests returned to the teacher.

Results were compiled by determining the percentage of students at each school who obtained the correct answer on each item of the unit test. School results were combined to obtain the total percentage of students who answered an item correctly. A correct answer was considered an indication that the student achieved the objective being tested. It was arbitrarily determined that 80% of the students should pass an item for student achievement to be considered acceptable. Those items that were not passed by 80% of the students were reviewed to try and determine why the students were not achieving the concept involved. Several possibilities of deficient learning sources have been discussed.

The learning source of most concern here revolves around the thoroughness and clarity of the curriculum manual. In some cases unclear information or an inadequate number of assignment or job sheets may not provide for an acceptable level of student achievement on a particular concept. Even when the weak source is something other than the

curriculum, such as the teacher or the students, supplementing the text may overcome these other deficient sources and work to increase the students' understanding and achievement of the concept in question. Additional sources for improvement may include inservice workshops for teachers and updated facilities and equipment.

Overall, the Home Economics I curriculum manual produces acceptable student achievement and can be considered a valid source of instructional materials for home economics classes. From a sample of five units it is apparent that some units provide better results than others. Many of the items on Child Care Worker and Small Sewing Equipment units were mastered by 95% of the students. On the other hand, half of the items on the Color unit did not meet the 80% criterion for student achievement. Because of these differences in performance it is difficult to generalize the results to the entire manual. There were some similarities however, in the type of items that resulted in the highest student achievement. In the majority of cases, over 90% of the students were able to match the terms presented in each unit with the correct definitions. It appears that the curriculum is presenting the basic terms so that students are able to comprehend the information and demonstrate their knowledge on the unit tests. Generally, achievement was lower when the students were asked to "explain," "discuss," or "list" several pieces of information. This type of question usually demands a higher form of learning than simple rote memory. A curriculum that provides activities and experiences with the information is more likely to facilitate a higher level of learning. The Home Economics I curriculum has provided an opportunity for many of these experiences to take place, however, there may be room for additional activities to reinforce the mastery of

the proposed objectives.

There may also be a need to stress the importance of the performance activities to the teachers. If the teachers are not utilizing all aspects of the curriculum, then it is not the text per se that needs changing, but the presentation of the material to the teachers and their acceptance of the information and the suggestions that are provided. An analysis of the performance items should provide a good indication of whether the teachers are utilizing at least some of the activities. Because many of the teachers did not indicate the students' performance on these items, such analysis cannot be performed for the Home Economics I curriculum as part of this study. Further validation studies should include a complete analysis of the students' performances on the assignment and job sheets as they relate to the specified objectives of the unit.